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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,326	02/26/2004	Nicolas G. Adiba	SVL920040008US1/3055P	9418

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SAWYER LAW GROUP LLP  
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Palo Alto, CA 94303

EXAMINER
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ROSE, HELENE ROBERTA

ART UNIT	PAPER NUMBER
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2163

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/789,326

Applicant(s)

ADIBA, NICOLAS

Examiner

Helene Rose

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2007.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Detailed Action**

1. In response to communication entered on 1/16/2007. Claims 1-8 and 10-37 have been amended. No claims were added, nor cancelled. Therefore, Claims 1-37 is pending.

**Claim Objections**

2. Claims 16 and 33 are objected to because a series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.
3. Claims which depend from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

**Claim Rejection – 35 USC – 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holenstein et al. (US Patent No. 7,003,531/Filing Date of Patent: December 10, 2002) in view of Norin et al (US Patent No. 5,787,247, Date of Patent: July 28, 1998) and further in view of Berkowitz et al (US Patent No. 6,934,727, Date Filed: January 2, 2003).

**Claims 1,18 and 35:**

Regarding Claims 1,18 and 35 discloses a method, a computer readable medium with program instructions, and a system utilizing the same functionality, wherein \*\*\* teaches method, a computer readable medium with program instructions, and a system comprising:

an asynchronous **database** replication group including a plurality of pre-existing table copies (column 5, lines 52-60, wherein the system includes two databases, each located remotely from the other, wherein each database may have one or more tables or files and then two remotely located databases replicate themselves, wherein the replication maintains the two databases including all of their respective table or files in the same state, wherein the two database are different physical locations and so forth; and column 9, lines 37-43, wherein the first database and the second database may both be offline during the synchronization, or one of the databases may be on-line and the other database may be offline during synchronization, which is equivalent to “an asynchronous **database**\_replication group including a plurality of pre-existing table copies”, Holensein) ;

Holenstein disclose the above limitation. However Holestein does not discloses wherein a new table copy to be added to the asynchronous database replication group.

On the other hand, Norin discloses wherein a new table copy to be added to the asynchronous database replication group (column 4, lines 17-20, wherein this read on “each server periodically broadcast the new locally made changes to all other servers with a copy of the data set” Norin).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Norin teachings into Holenstein system. A skilled artisan would have been motivated to combine as suggest by Norin for providing a more efficient way of

loading/modifying/deleting data within an replication database that will increase a system performance vs. decreasing in performance.

a load utility to load data from a source table copy into the new table copy, the source table copy being one of the plurality of pre-existing table copies in the asynchronous database replication group (column 4, lines 23-25, wherein the local copy of the data is interpreted to be the source table copy and wherein the data set changes are received, is interpreted to be equivalent to asynchronous database replication, Norin);

concurrent to the load utility loading the data from the source table copy into the new table copy, an apply module to simultaneously apply changes of a user application received during the loading of the data to the plurality of pre-existing table copies in the replication group including the source table copy (column 4, lines 23-25, wherein this reads on “allows each server to update its local copy of the data set as changes are received by replacing the older data objects with the newer data objects”, Norin); and

create a spill storage area at the new table copy and store the changes of the user application in the storage spill area without applying the changes of the user application to the new table copy (columns 4 and 5, lines 62-67 and lines 1-30, respectively, Norin); and

upon completion of the loading of the data into the new table copy, the apply module to apply the changes of the user application stored in the spill storage area to the new table copy (column 5, lines 46-49, respectively, Norin); and

remove the spill storage area from the new table copy after the changes stored in the spill storage area have been applied to the new table copy (column 5, lines 50-53, respectively, Norin).

**Claims 2 and 19:**

Regarding Claim 2, the combination of Holenstein in view of Norin teaches wherein prior to **instructions for creating a spill storage area at the new table copy** comprises:

seeing a start signal at the source table copy (column 2, lines 16-18, wherein this reads on “adding a copy of a data set on a system which does not currently possess a copy of the data set, Norin);

sending a schema message from the source table copy to the new table copy, **the schema message indicating that changes are being captured from the source table copy for a subscription of the new table copy** (column 13, lines 51-53, wherein this reads on “replica list maintenance block is responsible for ensuring that replica list is properly updated as new information is received via replication processing block, Norin); and

changing a state of **the subscription of the new table copy** at the source table copy from “inactive” to “loading” (column 25, lines 1-27, respectively, Norin).

**Claims 3 and 20:**

Regarding Claims 3 and 20, the combination of Holenstein in view of Norin teaches wherein **instructions for creating a spill storage area at the new table copy** comprises **instructions for:**

receiving **the schema message** at the new table copy (column 11, lines 33-36, wherein if a row sent from the source database is not present in the target database, then the content of the row is requested from the first database, and upon receipt, which is interpreted to be “receiving”, the row and its content are inserted into the target database, which is interpreted to be “the schema message at the new table copy”, and overall this is interpreted to be equivalent to “receiving the schema message at the new table copy”, Holenstein); **and**

invoking a load utility at the new table copy, **to load the data from the source table copy into the new table copy** (column 29, lines 55-62, wherein the loader could note that the current replication stream position representing when the blocks are read and compare that to the replication stream processing point being applied into the target when it is ready to insert the blocks into the target, and if the blocks replication stream point is new, meaning more recent, it applies the blocks into the target, which is interpreted to be equivalent to “invoking a load utility at the new table copy, to load the data from the source table copy into the new table copy”, Holenstein).

Claims 4 and 21:

Regarding Claims 4 and 21, the combination of Holenstein in view of Norin teaches wherein **instructions for creating a spill storage area at the new table copy** further comprises **instructions for:**

changing a state of a subscription **of the new table copy** at the new table copy from "inactive" to "internal loading", if the data load is an internal data load, **an internal data load being a data load automatically activated by the load utility; or** changing the state of the subscription **of the new table copy** at the new table copy from "inactive" to "external loading", if the data load is an external data load, **an external data load being a data load manually activated by an administrator** (column 29, lines 18-29, wherein local process block can respond to the add replica event by modifying the replica state in the replica list to active, and if the local replica node is being mode to the active state, then the replica state monitoring/update block will note the change in the replica list and so forth, which reads on “changing a state of a subscription of the new table copy at the new table copy from "inactive" to "internal loading", if the data load is an internal data load, an internal data load being a data load automatically activated by the load utility”, Norin).

Art Unit: 2163

Claims 5 and 22:

Regarding Claims 5 and 22, the combination of Holenstein in view of Norin discloses the above limitations. However, the combination of Holenstein in view of Norin does not disclose wherein the **instructions for loading data from a source table copy into the new table copy** comprises **instructions for: copying** the data from the source table copy to the new table copy; **and** sending a load done message from the new table copy to the source table copy after the data load is done.

On the other hand, Berkowitz discloses wherein the **instructions for loading data from a source table copy into the new table copy** comprises **instructions for:**

**copying** the data from the source table copy to the new table copy (column 7, lines 30-32, wherein this reads on “the table is already cached on nodes and it can be changed by the arbitration mechanism while the copy of the table is being created on node, Berkowitz); **and**

sending a load done message from the new table copy to the source table copy after the data load is done. (column 10, lines 61-65, respectively, Berkowitz).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Berkowitz teachings into the combination of Holenstein and Norin system. A skilled artisan would have been motivated to combine as suggest by Berkowitz for establishing an improved method of changing a table to be copied from one destination to another without requiring that activity on the table be stopped during the process.

Claims 6 and 23:

Regarding Claims 6 and 23, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches **wherein instructions for loading data from a source table copy into the new table copy** further comprises:

Art Unit: 2163

receiving the load done message at the source table copy (Figure 5A.diagram, Berkowitz);  
sending the load done message back to the new table copy (column 26, lines 54-59,  
respectively, Berkowitz); and

changing **the** state of **the** subscription of **the new table copy** at the source table copy from  
"loading" to "active" (column 13, lines 26-28, respectively, Berkowitz).

Claims 7 and 24:

Regarding Claims 7 and 24, the combination of Holenstein in view of Norin and further in  
view of Berkowitz teaches wherein the **instructions for loading data from a source table copy  
into the new table copy** further comprises **instruction for:**

tagging the changes **of the user application** for the new table copy that occur before the  
load done message is received at the source table copy (column 6, lines 10-21, respectively,  
Berkowitz).

Claims 8 and 25:

Regarding Claims 8 and 25, the combination of Holenstein in view of Norin and further in  
view of Berkowitz teaches wherein the **instructions for applying the changes of the user  
application stored in the spill storage area to the new table copy** comprises **instructions for:**

receiving **the** load done message at the new table copy (Refer to claim 6, wherein this  
limitation is substantially the same);

starting a spill agent thread at the new table copy (column 6, lines 10-21, respectively,  
Berkowitz);

changing **the** state of **the** subscription of **the new table copy** at the new table copy to "load  
finishing" (column 26, lines 54-59, respectively, Berkowitz); and

**the spill tread agent processing the changes of the user application stored in the spill storage area** (column 16, lines 8-13, respectively, Berkowitz).

Claims 9 and 26:

Regarding Claims 9 and 26 the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein for an internal data load, a thread used to load the data is reused as the spill agent thread (column 16, lines 34-37, Holenstein).

Claims 10 and 27:

Regarding Claims 10 and 27, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **instructions for the spill tread agent processing the changes of the user application stored in the spill storage area** comprises **instructions for:**

re-executing the changes **of the user application** to a same row at the new table copy in a same order as **previously executed** at the source table copy (column 5, lines 43-51, Holenstein);

identifying and resolving dependencies between the changes **of the user application** to the same row (column 5, lines 37-41, Holenstein); and

detecting and resolving conflicts between the changes **of the user application** to the same row (column 32, lines 59-64, Holenstein).

Claims 11 and 28:

Regarding Claims 11 and 28, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **instructions for the re-executing changes of the user application to a same row at the new table** comprises **instructions for:**

deleting the re-executed change from the spill storage area in a same transaction as the re-execution (Figure 3, all features, further defined in column 17, lines 62-67, respectively, Norin).

Claims 12 and 29:

Regarding Claims 12 and 29, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **instructions for deleting each re-executed change** comprises **instructions for:**

**performing the deletion of each re-executed change using a two-phase commit** protocol (Figures 3, all features and Figure 4, diagram 78, respectively, Norin).

Claims 13 and 30:

Regarding Claims 13 and 30, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **instructions for deleting each re-executed change** comprises **instructions for:**

storing a message identifier for the re-executed change at the new table copy, wherein upon a restart of the **loading the data into the new table copy, in response to a shutdown or crash**, only changes from the spill storage area without a corresponding stored message identifier are applied to the new table copy (column 20, lines 61-67 and lines 1-7, respectively, Berkowitz).

Claims 14 and 31:

Regarding Claims 14 and 31, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **instructions for detecting and resolving conflict** comprises **instructions for:**

ignoring a change to a row not found in the new table copy when re-executing a conflicting row delete (column 24, lines 37-40, Holenstein);

ignoring a change to a row not found in the new table copy when re-executing a conflicting row update (column 24, lines 37-40, Holenstein);

ignoring a change to a row in the new table copy when re-executing a conflicting row insert (column 25, lines 8-9, wherein this reads over “insert ones from source into target that are not in the target” Holenstein); and

ignoring a change to an old row not found or a new row found in the new table copy when re-executing a conflicting key update (column 28, lines 15-24, respectively, Holenstein).

Claims 15 and 32:

Regarding Claims 15 and 32, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **the instructions for detecting and resolving conflict** comprises **instructions for:**

ignoring a missing row in the new table copy when re-executing a row delete (Column 12, lines 55-57, wherein this reads over “if nay rows are missing from the block of data but are present in the target database, when such rows are deleted from the target database”, Holenstein);

transforming a re-execution of an update into a row insert when a row in the new table copy is missing (column 6, lines 49-52, wherein this reads over “restoration or elimination of missing database updates”, Holenstein); and

transforming a re-execution of an insert into an update when a row in the new table copy already exists (column 2, lines 62-67, wherein this reads over “mapping a failed insert into an update due to an record already exists”, Holenstein).

Claims 16 and 33:

Regarding Claims 16 and 33, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein **the instructions for removing the spill storage area from the new table copy** comprises **instructions for:**

**the spill agent thread** sending a spill queue empty message to a browser thread at the new table copy when the spill agent thread reaches a last change on the spill storage area (column 13, lines 4-14 and column 14, lines 10-14, respectively, Norin);

**the browser thread** determining that an oldest running transaction at the new table copy is older than a most recent transaction when a load done message was received at the source table copy (column 14, lines 47-51, respectively, Norin);

**the browser thread** sending a spill final message to the spill agent thread (column 14, lines 51-53, wherein the G entry of the list 1 is included in the final updated list, Norin); and

**responsive to the spill agent thread receiving the spill final message**, deleting the spill storage area when emptied by the spill agent thread (column 19, lines 49-52, wherein when a replica node is active state and receives a remove replica event indicates that the replica node transition from active state to delete pending state, Norin).

Claims 17 and 34:

Regarding Claims 17 and 34, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches wherein the **instructions for removing the spill storage area from the new table copy** further comprises **instructions for:**

**the spill agent thread** sending a spill done message by the spill agent thread to the browser thread (column 19, lines 13-18 respectively, Norin);

terminating the spill agent thread (column 19, line 12 and column 20, lines 47-48, wherein when terminating user access to copy of data set both types of access must be terminated, Norin);

**the browser thread** receiving the spill done message (column 7, lines 45-46, respectively, Norin); and

changing **the** state of **the** subscription of **the new table copy** at the new table copy to "active" (Refer to claims 6 and 23, wherein this limitation is substantially the same, Holenstein).

Claims 36 and 37:

Regarding Claims 36 and 37, the combination of Holenstein in view of Norin and further in view of Berkowitz teaches removing the spill storage **from the new table copy** after the changes **stored** in the spill storage area have been applied to the new table copy (Refer to claim 35, wherein this limitation is substantially the same/or similar and therefore rejected under the same grounds).

**Prior Art of Record**

- |    |                   |                           |
|----|-------------------|---------------------------|
| 1. | Holenstein et al. | (US Patent No. 7,003,531) |
| 2. | Berkowitz et al   | (US Patent No. 6,934,727) |
| 3. | Norin et al       | (US Patent No. 5,787,247) |

**Response to Arguments**

6. Applicant's arguments filed on 1/30/2007, with respect to the rejected claims in view of the cited references have been considered but are moot in view of applicant's amended claims necessitate new ground(s) of rejection.

### Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
8. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

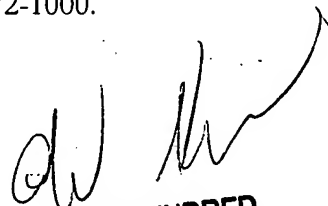
**Point of Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helene Rose  
Technology Center 2100  
April 01, 2007

  
ALFORD KINDRED  
PRIMARY EXAMINER